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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/881,441	06/14/2001	Michael Keane	476-2037	6915

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EXAMINER
HARPER, VINCENT P

ART UNIT	PAPER NUMBER
2654	

DATE MAILED: 04/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

cd

Office Action Summary	Application No.	Applicant(s)	
	09/881,441	KEANE ET AL.	
	Examiner	Art Unit	
	V. Paul Harper	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☒ Claim(s) *17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Measuring Speech Quality Over a Communications Network."

2. The disclosure is objected to because of the following informalities:

- The word "provide" should be modified to read—providing—on page 13, line 16.

Appropriate correction is required.

Claim Objections

3. Claim 17 objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative form only. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claim 11 rejected under 35 U.S.C. 102(e) as being anticipated by Lewis et al. (U.S. Patent 6,330,428), hereinafter referred to as Lewis.

Regarding claim 11, Lewis discloses an evaluation system that works with a test voice signal consisting of a plurality of different voice samples (column 3, lines 2-3; column 3, lines 18-21) being sent over a packet-based system (Fig. 1B), which reads on "a signal for a voice call provided over a packet-based communications network, said signal comprising a plurality of packets at least one of which comprise test voice information."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3, 7, 8, 14, 16, 17, 18, 19, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis in view of Tschudin ("Header hopping and packet mixers," Ninth Conference on Computer Communications and Networks, 2000. Proceedings, Oct. 2000).

Regarding claims 1, Lewis discloses a voice quality performance evaluator and method of operation in conjunction with a packet based communication network (column 1, line 26-27). Lewis's system comprises: a first and second voice terminal connected to separate nodes on a packet data network (Fig. 1B); a node in a packet network receiving the original voice sample (column 3, lines 1-3), which reads on "(i) receiving packets for the voice call "; a transmission path to the second node (column 3, line 2-3), which reads on "(ii) forwarding the packets to the second node"; processing circuitry that receives the modified voice sample via the interface from the voice transmission path under test and compares the original voice sample to the modified voice sample to evaluate the quality of the transmission path (column 3, lines 3-8), which reads on "(iii) at the second node, accessing the test voice information stored at

the second node and comparing it with the test voice information received in the packets using a speech quality assessment algorithm in order to obtain a measure of speech quality for the voice call." However, Lewis fails to specifically disclose "adding at least part of the stored test voice information to at least some of the packets." However, the examiner contends that the concept of mixing signals such as normal voice and voice test signals was well known in the art, as taught by Tschudin.

Tschudin describes a steganographic protocol for packet switched networks where hidden information can be added to normal meassages (abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lewis to allow testing and normal voice communication to proceed simultaneously by the use of steganographic techniques, for the purpose of having an ongoing evaluation of speech quality.

Regarding claim 3, Lewis in view of Tschudin disclose everything claimed as applied above (see claim 1), in addition, Lewis describes the use of voice communications over packet data networks such as the Internet (column 1, lines 26-28), which reads on "said packet-based communications network is an internet protocol communications network."

Regarding claim 7, Lewis in view of Tschudin disclose everything claimed as applied above (see claim 1), in addition, Tschudin teaches the use of a tags in packets to identify packets that contain valid data (pg 316, introduction, paragraph two), which reads on "identifying which of the packets comprise test voice information by

determining whether a pre-specified identifier is present in a header of each of the packets."

Regarding claim 8, Lewis in view of Tschudin disclose everything claimed as applied above (see claim 7), in addition, Tschudin teaches the use of a tags in packets to let only the intended receiver recognize the packets that contain valid data (pg 316, introduction, second paragraph), which reads on "forwarded from the first node to the second node via one or more other nodes which do not have access to information about the pre-specified identifier."

Regarding claims 14, 17, 19, and 20, Lewis discloses a packet-based system capable of measuring speech quality (Fig. 1B). In addition, Lewis's system includes: a node for receiving voice (158), which reads on "(i) an input arranged to receive packets for the voice call; processing circuitry for retrieving voice samples that will eventually be coded and transmitted on the network (column 6, lines 38-47, Fig. 2, (202), which reads on "(ii) a processor arranged to add test voice information to one or more of the packets; an output (304) that directs data over a packet switched network (302) to a destination (312); which reads on an output arranged to forward the packets towards the called party. However, Lewis fails to specifically disclose the use of the system during an ongoing voice call between two parties. However, the examiner contends that the concept of mixing signals such as normal voice and voice test signals was well known in the art, as taught by Tschudin.

Tschudin describes a steganographic protocol for packet switched networks where hidden information can be added to normal massages (abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lewis to allow testing and normal voice communication to proceed simultaneously by the use of steganographic techniques, as taught by Tschudin, for the purpose of having an ongoing evaluation of speech quality.

Regarding claims 16, 18, and 21, they are interpreted and rejected for the same reasons as set forth above in the rejection of claims 1 and 14. In addition, Lewis teaches the use of an input decoder (312) for receiving packets from the network, which reads on "an input arranged to receive packets"; original samples (402), which reads on "stored test voice information"; and processing circuitry (202) that performs a comparison and a speech quality evaluation (Fig. 4), which reads on "a processor arranged to compare the received test voice information and the stored test voice information using a speech quality assessment algorithm in order to obtain a measure of speech quality for the voice call."

6. Claims 4, 9, 10, 22, and 23, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis in view of Tschudin, and further in view of well known prior art (MPEP 2144.03).

Regarding claim 4, Lewis in view of Tschudin disclose everything as applied above (see claim 1). However, Lewis in view of Tschudin do not specifically teach the use of real-time protocol packets. However, the examiner takes official notice of the fact that the use of real-time transport protocol for the transmission of sounds over an IP network was well known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lewis in view of Tschudin by using the real-time transport protocol when exchanging real-time data such as sounds between nodes in a network so as to adhere to a standard protocol.

Regarding claim 9, Lewis in view of Tschudin disclose everything claimed as applied above (see claim 1); Lewis's Fig. 3 and the summary of the invention (column 2, lines 61-67, column 3 lines 1-11) suggest that the sending and receiving nodes could be located at separate locations; however, Lewis in view of Tschudin do not explicitly state that the first and second nodes are located at the edge of the network. However, the examiner takes official notice of the fact that the separation of the nodes for the purpose of testing was well known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lewis in view of Tschudin by duplicating the voice quality performance evaluator and locating the separate evaluators at distance locations across a network, as an alternative way of determining voice quality between points on the network.

Regarding claim 10, Lewis in view of Tschudin disclose everything as applied above (see claim 1). However, Lewis in view of Tschudin do not specifically teach the use of the PESQ algorithm for speech quality assessment. However, the examiner takes offical notice of the fact that the use of the PESQ algorithm for the evaluation of speech quality was well known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lewis in view of Tschudin by using the PESQ algorithm to evaluate speech quality so as to use a widely accepted standard for evaluating speech quality.

Regarding claims 22 and 23, Lewis in view of Tschudin disclose everything as applied above (see claim 21 and 20, respectively). However, Lewis in view of Tschudin do not specifically teach the storage of a computer program on a computer readable medium. However, the examiner takes official notice of the fact that the use of computer readable medium was well known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lewis in view of Tschudin by storing the computer program on computer readable medium for the purpose of loading the program as needed.

7. Claims 2, 5, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis in view of Tschudin and further in view of Petitcolas et. al., ("Information Hiding—A Survey" Proceedings of the IEEE, Vol. 87, No. 7, July 1999), hereinafter referred to as Petitcolas.

Regarding claims 2, 5, and 15, Lewis in view of Tschudin disclose everything claimed as applied above (see claims 1 and 14, respectively); however Lewis in view of Tschudin do not specifically describe the identification of voice packets where speech is absent and the adding of voice test information to those packets. However, the examiner contends that the concept of identifying packets where speech is absent is

consistent with the technique of identifying residual bandwidth for the purpose of storing hidden information there, as taught by Petitcolas.

Petitcoloas teaches the use of suitable coding techniques to exploit residual bandwidth (pg. 1067, section D).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lewis in view of Tschudin by using the residual bandwidth available in packets where speech is absent, as an efficient technique for combining signals.

Regarding claim 5, Lewis in view of Tschudin and further in view of Petitcolas disclose everything as applied above (see claim 2). In addition, Tschudin teaches the modification of packet headers of the packets that contain hidden information (abstract, and the first and second paragraphs of the introduction), which reads on " making an indication in a header of each of those packets to which test voice information is added."

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis in view of Tschudin and Petitcolas, and further in view of well known prior art (MPEP 2144.03).

Regarding claim 6, Lewis in view of Tschudin and Petitcolas disclose everything as applied above (see claim 5). In addition, Tschudin teaches the hiding of information in a packet header (pg 316, first paragraph of the introduction), which reads "said indication is a payload value." However, Lewis in view of Tschudin and Petitcolas do not specifically teach the use of real-time transport protocol packets. However, the

examiner takes official notice of the fact that the use of real-time transport protocol for the transmission of sounds over an IP network was well known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lewis in view of Tschudin and Petitcolas, by using the real-time transport protocol when exchanging real-time data such as sounds between nodes in a network so as to adhere to a standard protocol.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis in view of Tschudin and of Petitcolas.

Regarding claim 12, Lewis discloses everything claimed as applied above (see claim 11), in addition, it is rejected for the same reasons given above for claims 1 and 2.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis in view of well known prior art (MPEP 2144.03).

Regarding claim 13, Lewis discloses everything as applied above (see claim 11), in addition, it is rejected for the same reasons given above for claim 4.

Citation of Pertinent Art

The following prior art made of record but not relied upon is considered pertinent to the applicant's disclosure:

Randic, "Method and Apparatus for Measureing Voice Path Quality by Means of Speech Recotgnition," U.S. Patent No. 6,276,797.

Conclusion

Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to:

Crystal Park II
2021 Crystal Drive
Arlington, VA.
Sixth Floor (Receptionist)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. V. Paul Harper whose telephone number is (703) 305-4197. The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsh D. Banks-Harold, can be reached on (703) 305-4379. The fax phone number for the Technology Center 2600 is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service office whose telephone number is (703) 306-0377.

VPH/vph
April 5, 2002

MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600